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EXAMINER

MARIAM, DANIEL G

ART UNIT PAPER NUMBER

2621

DATE MAILED: 05/19/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,196

Applicant(s)

KAMBEGAWA, MINORU

Examiner

DANIEL G MARIAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Abstract

1. The replacement abstract of the disclosure (submitted in the preliminary amendment of March 28, 2002) is objected to because it contains unclear words because of holes at the top of the second page. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 3 is objected to because of the following informalities: the limitation $n=mx \times b$ (m is equal to the less than n) recited in lines 9-10 appears to be grammatically awkward. A similar limitation also occurs in claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 2, 6-7, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, claim 1 recites the limitation “ n -bit image data, n -bitplane, n sets, n memories”. Similar limitations also occur in claims 2, 6, 7, and 10. It is unclear what the parameter “ n ” supposes to represent? Please clarify.

Sine claims 3-5 and 8-9 directly or indirectly depend on claims 2 and 6 respectively, they are also rejected under 35 U.S.C. 112, second paragraph, for the same reason set forth above for claims 2 and 6.

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5. Claim 5 recites the limitation "the b pairs" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 10 recites the limitation "a storage medium storing a program for causing a computer to execute an arithmetic decoding" which is non-statutory. A program is functional descriptive material, and is only statutory when embodied in a computer readable medium. Applicant may overcome this rejection by rewriting the claim as "A computer medium or a computer-readable medium storing a program for causing a computer to execute an arithmetic decoding" (See MPEP 2106).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2, 4-5, 6, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yajima (5,809,176).

With regard to claim 1, Yajima discloses an arithmetic decoding method of decoding arithmetically encoded image data formed of at least one bitplane by using n memories, i.e., four memories 18-1-18-4, in Fig. 1A, that can be accessed separately (as shown in Fig. 1A), the

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arithmetic decoding method comprising the steps of: storing, when n-bit image data, i.e. four bit image data, is to be decoded, n variables, i.e., high order bits, low order bits, major symbol, minor symbol, or corresponding to pixels to be decoded, of respective n bitplanes, i.e., four bit planes, of the n-bit image data in respective corresponding ones of the n memories (i.e., memories 18-1-18-4, not shown in Fig. 1B of the decoding part. However, the arithmetic decoders (22-1-22-4) decodes the incoming encoded data following the exactly reversed procedures of those for arithmetic encoders 10-1-10-4 shown in Fig. 1A), storing, when less than n-bit image data is to be decoded, one of the variables corresponding to pixels to be decoded, of each bitplane of the less than n-bit image data, in at least part of the n memories by allocating the one of the variables thereto (See for example, Fig. 1B; col. 21, lines 33-52; col. 13, lines 53 through col. 14, line 56; and col. 18, lines 33-63); sequentially reading ones of the variables corresponding, respectively, to pixels to be decoded, of each bitplane from the n memories, and sequentially decoding the pixels based on the corresponding ones of the variables sequentially read from the n memories (See for example, col. 17, line 52 through col. 18, line 63; and col. 20, lines 43-44).

With regard to claim 2, an arithmetic decoding method of decoding arithmetically encoded image data formed of at least one bitplane by using n memories that can be accessed separately, the arithmetic decoding method comprising the steps of: storing, when n-bit image data is to be decoded, n sets of a more probable symbol and a state value or a probability estimate corresponding to pixels to be decoded, of respective n bitplanes of the n-bit image data in respective corresponding ones of the n memories (See Fig. 5; Fig. 9; and col. 30-col.32, Tables 1-2B); storing, when less than n-bit image data is to be decoded, a set of the more

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probable symbol and the state value or the probability estimate corresponding to pixels to be decoded, of each bitplane of the less than n-bit image data, in at least part of the n memories by allocating the set of the more probable symbol and the state value or the probability estimate thereto (See for example, col. 17, line 44 through col. 18, line 63); sequentially reading pairs of the more probable symbol and the state value or the probability estimate corresponding, respectively, to pixels to be decoded, of each bitplane from the n memories; and sequentially decoding the pixels based on the corresponding pairs of the more probable symbol and the state value or the probability estimate sequentially read from the n memories (See for example, col. 17, line 52 through col. 18, line 63; and col. 20, lines 43-44).

With regard to claim 4, an arithmetic decoding method according to claim 2, including the step of designating a mode of the decoding corresponding to the number of bits of the image data (See for example, col.21, lines 33-41).

With regard to claim 5, an arithmetic decoding method according to claim 2, including the step of generating a context, i.e. signal CX, for selecting the one of the b pairs of the more probable symbol and the state value or the probability estimate, in a manner such that one of components of the context, which is to be determined last, is set to a bit representative of a pixel on a most significant one of the at least one bitplane (See for example, Figure 9).

Claim 6 is rejected the same as claim 2 except claim 6 is an apparatus claim. Thus, argument analogous to that presented above for claim 2 is equally applicable to claim 6.

Furthermore, applicant's attention is further invited to Figures 1B and 9.

Claims 8 and 9 are rejected the same as claims 4 and 5 respectively, except claims 8 and 9 are apparatus claims. Thus, arguments similar to those presented above for claims 4 and 5 are respectively applicable to claims 8 and 9.

Claim 10 is rejected the same as claim 2. Thus, argument analogous to that presented above for claim 2 is equally applicable to claim 10. Yajima further discloses a storage medium storing a program for causing a computer to execute an arithmetic decoding method of decoding arithmetically encoded image data formed of at least one bitplane by n memories that can be accessed separately (See for example, Fig. 1B).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers: 5442458, 6055338, 6118900, and 6625321; and a Publication to Sodagar, et al. "A New Error Resilience Technique for Image Compression Using Arithmetic Coding".

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LEO BOUDREAU can be reached on 703-305-4607. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DANIEL MARIAM
PRIMARY EXAMINER

May 14, 2004